ABSTRACT

A valve unit in an ink supply channel of an ink-jet recording apparatus, the ink supply channel having an upstream side and a downstream side, the valve unit comprising a diaphragm valve having a thin elastic diaphragm operating in response to pressure difference between an upstream side and a downstream side of the diaphragm, a valve body formed on the surface of the thin elastic diaphragm and having an opening therein, and an elastic support portion integrally formed with the valve body for urging the valve body toward the upstream direction, a valve seat disposed in the ink supply channel upstream of the diaphragm and kept in elastic contact with the opening, and a flow-channel forming plate for forming a flow channel disposed on the downstream side of the valve seat, the flow channel, extending in a longitudinal direction of the elastic portion and the flow channel forming plate having an end portion side extending in an upstream direction to form a flow channel whose sectional area decreases in the longitudinal direction.